

ENTOMOLOGY.—*Description of the larva and pupa of the scarab beetle Ancylo-  
nycha mindanaona (Brenske).*<sup>1</sup> ADAM G. BÖVING, U. S. Bureau of Entomology and Plant Quarantine.

In the larval stage *Ancylonycha* appears congeneric with the genus *Phyllophaga* from the mainland of America and is inseparable from it except on geographical grounds. To be sure, the larva of *Ancylonycha mindanaona* is readily separated from all the species of *Phyllophaga* by possessing numerous round, dark spots (*DS*, Figs. 3, 7) on different places of the body, but similar dark spots have not been found on the larva of any other known species of *Ancylonycha* and must therefore be considered as a specific, not a generic, character. The larva of *A. mindanaona* comes very close to the larvae of the least-differentiated species of *Phyllophaga*, notably to the larvae of *P. vetula* (Horn), *P. crinita* (Burmeister), and *P. tristis* (Fabricius).

In the following description of the three larval instars of *A. mindanaona*, little regard is paid to the tribal and generic characters, which, as mentioned, are identical with those well known in the corresponding instars of *Phyllophaga*. On the other hand, all the specific characters are given that show the systematic relation of *Ancylonycha mindanaona* to the different species of *Phyllophaga* and especially the three above-named forms.

#### DESCRIPTION

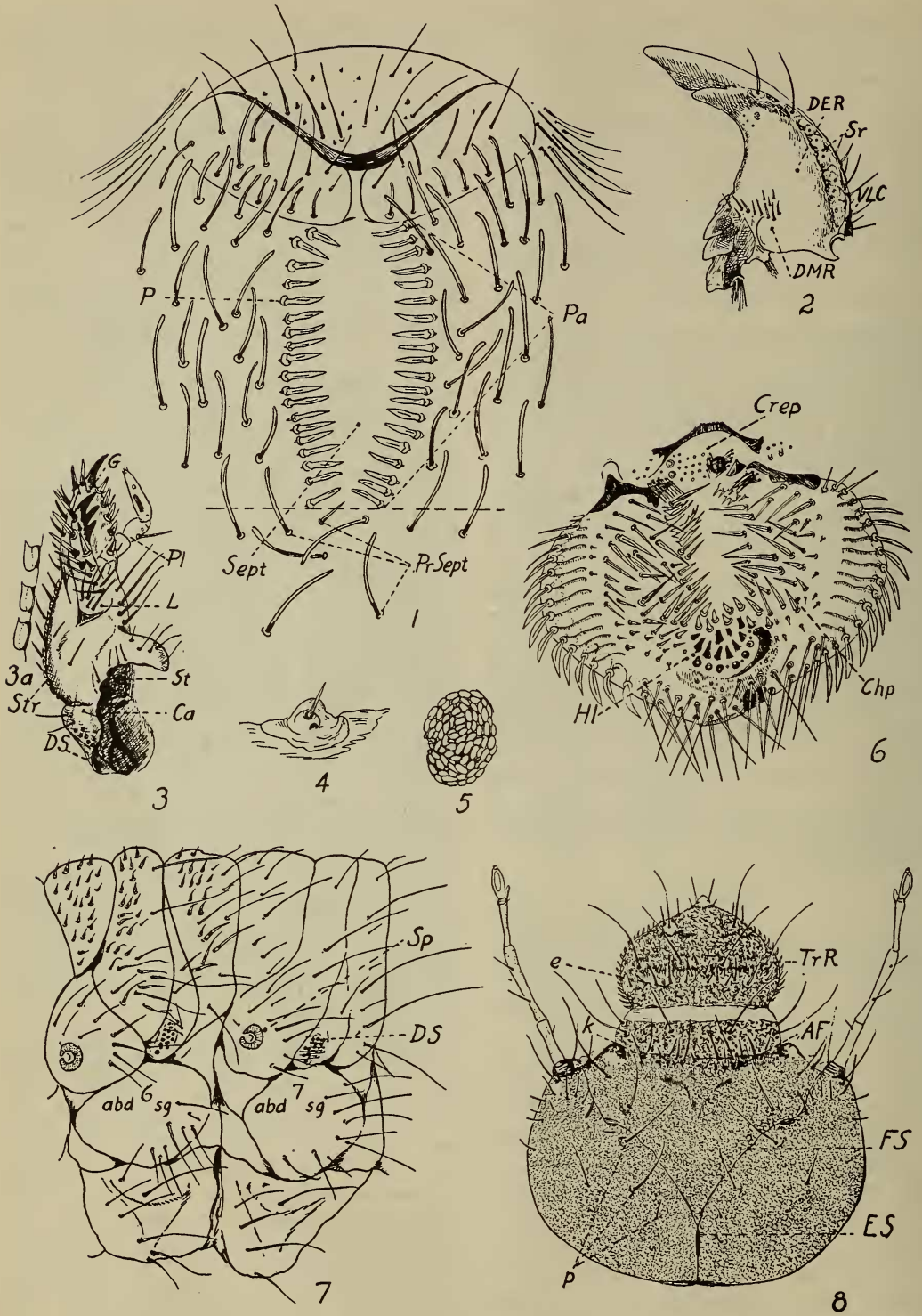
*First-stage larva.*—(Typical sample in U. S. National Museum labeled: "Interception No. 556, reared from eggs oviposited by adults in Interception No. 554; Guam 1938. R. G. Oakley.") Posterior part of labrum behind the transverse labral ridge without setae (compare *TrR*, Fig. 8). Anterior marginal region of frons (*AF*, Fig. 8) with one moderately long seta on each side. Epicranium on each side opposite the concave posterior part of the frontal suture (*FS*, Fig. 8) and the epicranial suture (*ES*, Fig. 8) with two setae. Dorsomolar region of right mandible (compare *DMR*, Fig. 2) with a transverse patch of about 12 setae; dorso-exterior region (*DER*, Fig. 2) with no punctures and no setae; scrobis (*Sr*, Fig. 2) with about 10 punctures in a longitudinal row and

no setae; ventrolateral carina (*VLC*) without setae; basolateral region with a patch of about seven fairly long and small setae. Epipharynx (compare Fig. 6) with about nine heli (*Hl*); proplegmatium absent; chaetopariae (*Chp*) without punctures among the setae; crepidal punctures (*Crep*) about 20. Raster (compare Fig. 1) with an elongate-ovate septula (*Sept*), which is sometimes slightly constricted at the middle; palidium (*Pa*) with one regular row of about 25 slightly curved, pointed, rather short pali (*P*); distance between bases of pali from less than half the length of a palus to as long as, or longer than, a palus; preseptular setae (*PrSept*) five or a few more. Numerous dark spots present in groups on different parts of the body but especially in the bottom of a fold posterior to the spiracles of most segments (compare *DS*, Fig. 7). Hatching tooth (=ruptor ovi) (Fig. 4) on the posterior dorsal area of metathorax, small, dome shaped, and with a moderately long seta. Spiracles (Fig. 5) with a circular, disk-shaped, multifenestrate, cribriform respiratory plate and no bulla and no spiracular orifice. Mediodorsal length of body, measured segment by segment from anterior margin of prothorax to V-shaped anus, about 9 mm; width of head capsule about 2.5 mm; length of head capsule about 2 mm.

*Second-stage larva.*—Similar in all characters to the third-stage larva, except in size. Mediodorsal length of body from anterior margin of prothorax to anus about 28.5 mm; width of head capsule about 5 mm; length of head capsule about 3 mm.

*Third-stage larva.*—(Typical sample in U. S. National Museum labeled: "In soil, field; Guam; Guam No. 1784; 17.III.1939; R. G. Oakley.") Labrum (Fig. 8) rugose, with posterior part behind the labral ridge (*TrR*) bearing a transverse, irregular series of about six moderately long setae (*e*) on each side. Head capsule finely verrucose, yellowish brown. Anterior marginal region of frons (*AF*) with a transverse, irregular series of six to nine moderately long setae (*k*) on each side (and sometimes with a few short additional setae). Epicranium (Fig. 8) on each side opposite the concave posterior part of one of the frontal

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FIGS. 1-8 — (See opposite page for legend)

sutures (*FS*) and the epicranial suture (*ES*) with a somewhat oblique, longitudinal series of three setae (*p*) of various lengths. Dorsomolar region (*DMR*, Fig. 2) of right mandible with a transverse patch of about 12 setae, dorso-exterior region (*DER*) with no punctures and no setae; scrobis (*Sr*) without setae but with several longitudinally arranged sensorial punctures distributed over most of the surface and in the wall of the carinae, which limit the region; ventrolateral carina (*VLC*) with about 10 moderately long setae; basolateral region with a patch of about 10 fairly long setae. Epipharynx (Fig. 6) with about nine heli (*Hl*); proplegmatium absent; chaetopariae (*Chp*) without sensorial punctures among the setae; crepidal punctures (*Crep*) about 20. Raster (Fig. 1) with elongate-ovate septula (*Sept*); palidium (*Pa*) with one regular row of from 20 to 27 depressed, straight, dagger-shaped, pointed and (when not worn) moderately long pali (*P*); distance between bases of pali about half as long as, or considerably shorter than, length of a palus; preseptular setae (*PrSept*) six or a few more or less. Claws unequal in length and different in shape on the three pairs of legs; on first and second pairs of legs about one-third length of tibiotarsi, enlarged at bases, straight and distally pointed; on third pair of legs less than half as long as claws of first and second pairs of legs, at base enlarged and distinct but distally very short. Spiracles (*Sp*, Fig. 7) well developed, each with the respiratory plate C-shaped, surrounding more than three-fourths circumference of bulla, and with an open, curved, spiracular orifice; minute fenestral elements of cribriform respiratory

plate oval and arranged in numerous transverse series with about 20 in each series; thoracic spiracle one and one-half times as large as the first abdominal spiracle; abdominal spiracles decreasing slightly and gradually in size posteriorly. Mediodorsal length of body, measured segment by segment from anterior margin of prothorax to the simple v-shaped anus, 42.5 mm; width of head 6 to 6.2 mm; length of head 4 mm.

*Pupa*.—Body soft-skinned, free from vestitures, all segments without lateral expansions. Mesonotum and metanotum slightly grooved longitudinally in the middle line; scutellum distinct. Base of each elytron with a thornlike, conical projection. Dorsal portion of each of the anterior abdominal segments rounded, but dorsal portions of the last three segments more flattened and with obtusely waved wrinkles; posterior margin of dorsum of each of fourth and fifth abdominal segments furnished with a pair of paramedian, dark, flat, dorsally convex knobs. Pleura of abdominal segments fused with their ventral parts. Cerci rather slender, conical, glabrous, directed obliquely backward and attenuated into a corneous, incurved, sharply pointed hook; each cercus about five times as short as one of the sides of the ninth abdominal segment. Anterior four pairs of abdominal spiracles provided each with a slightly tubular, rather thick and dark peritreme; rest of abdominal spiracles without distinct and dark peritremata. Mediodorsal length of pupa, measured from middle of vertex to posterior end of abdomen (excluding the cerci), about 28 mm; greatest width of prothoracic shield about 8 mm.

FIGS. 1-8.—LARVA OF ANCYLONYCHA MINDANAONA (BRENSKE)

The drawings for the figures were made by the author. When a figure presents a dorsal view of a structure the front part of the structure is shown pointing toward the upper margin of the plate, but when a figure gives a ventral view it is the rear part which points toward the upper margin. The right and left sides of the structure as they appear on the figure will then correspond to the veritable right and left sides of the structure in natural position on the insect when the latter is seen from above with its head away from the observer.

FIG. 1.—Raster: *P*, palus; *Pa*, palidium; *PrSept*, preseptular setae; *Sept*, septula. FIG. 2.—Right mandible, dorsal view: *DER*, dorsoexterior region; *DMR*, dorsomolar region; *Sr*, scrobis; *VLC*, ventrolateral carina. FIG. 3.—Left maxilla (facing the cavity of the mouth): *Ca*, cardo; *DS*, dark spots; *G*, galea; *L*, lacinia; *Pl*, palpus; *St*, stipes; *Str*, stridulatory teeth. FIG. 3a.—Stridulatory teeth. FIG. 4.—Hatching tooth (ruptor ovi). FIG. 5.—Spiracle of first-stage larva. FIG. 6.—Epipharynx, ventral view: *Chp*, chaetoparia; *Crep*, crepidal punctures; *Hl*, helus. FIG. 7.—Sixth and seventh abdominal segments, lateral view: *DS*, dark spots; *Sp*, spiracle. FIG. 8.—Dorsal surface of head: *AF*, anterior marginal region of frons (with 6 to 9 setae, *k*, on each side); *ES*, epicranial suture; *FS*, frontal suture (*p*, oblique longitudinal series of 3 setae opposite and close to the concave posterior part of frontal suture and the epicranial suture); *TrR*, posterior transverse labral ridge (*e*, transverse series of about 6 setae on each side behind the ridge).